WHAT IS CLAIMED IS:

1. A radiological imaging apparatus comprising:

a detector support member which extends in the longitudinal direction of a bed for supporting an examinee and is arranged around said bed; and

a radiation detection apparatus including a plurality of radiation detector units arranged in the longitudinal direction of said bed and around said bed, said plurality of detector units being attached to said detector support member in a detachable manner,

wherein said detector unit comprises a plurality of radiation detectors for detecting radiation and is provided with some of said radiation detectors for detecting said radiation that has passed through other said radiation detectors.

2. The radiological imaging apparatus according to claim 1, wherein said detector unit comprises:

a detector support substrate attached to said detector support member in a detachable manner;

the plurality of some of said radiation detectors and the plurality of said other radiation detectors arranged on said detector support substrate; and

a plurality of wires provided for said detector support substrate and connected to each of said radiation detectors for transmitting detection signals outputted from said radiation detectors.

3. The radiological imaging apparatus according

to claim 1, further comprising an image creation apparatus which creates images of said examinee using the output signals of said radiation detectors.

4. The radiological imaging apparatus according to claim 1, wherein said radiation detectors are semiconductor radiation detectors.

5. A radiological imaging apparatus comprising:

a ring-shaped detector support member which extends in the longitudinal direction of a bed for supporting an examinee and is arranged around said bed; and

a radiation detection apparatus including a plurality of radiation detector units arranged in the longitudinal direction of said bed and in the circumferential direction of said detector support member which includes said plurality of detector units attached to said detector support member in a detachable manner,

wherein said detector unit comprises a plurality of radiation detectors for detecting radiation and is provided with a plurality of said radiation detectors in different positions in the radius direction of said detector support member.

6. The radiological imaging apparatus according to claim 5, wherein said detector unit comprises:

a detector support substrate attached to said detector support member in a detachable manner;

the plurality of some of said radiation

detectors and the plurality of said other radiation detectors arranged on said detector support substrate; and

a plurality of wires provided for said detector support substrate and connected to each of said radiation detectors for transmitting detection signals outputted from said radiation detectors.

7. The radiological imaging apparatus according to claim 5, further comprising an image creation apparatus which creates images of said examinee using the output signals of said radiation detectors.

8. The radiological imaging apparatus according to claim 5, wherein said radiation detectors are semiconductor radiation detectors.

9. A radiological imaging apparatus comprising:

a detector support member which extends in the longitudinal direction of a bed for supporting an examinee and is arranged around said bed; and

a radiation detection apparatus including a plurality of radiation detector units arranged in the longitudinal direction of said bed and around said bed, said plurality of detector units being attached to said detector support member in a detachable manner,

wherein said detector unit is provided with a plurality of radiation detectors which detect γ-rays, some of said radiation detectors which detect said γ-rays that have passed through other said radiation detectors and a signal processing apparatus for γ-ray

detection signals outputted from said radiation detectors.

10. The radiological imaging apparatus according to claim 9, wherein said radiation detectors are semiconductor radiation detectors.

11. The radiological imaging apparatus according to claim 9, further comprising an image creation apparatus which creates images including areas where radiopharmaceutical in the body of said examinee is concentrated using the output information from said signal processing apparatus.

12. The radiological imaging apparatus according to claim 9, wherein said detector unit comprises:

a detector support substrate attached to said detector support member in a detachable manner;

a plurality of some of said radiation detectors and a plurality of said other radiation detectors set in said detector support substrate; and

a plurality of wires provided on said detector support substrate and connected to each of said radiation detectors for transmitting γ-ray detection signals outputted from said radiation detectors, and

said signal processing apparatus gets said γ-ray detection signals transmitted through said wires.

13. The radiological imaging apparatus according to claim 12, wherein said wires are provided in said detector support substrate.

14. The radiological imaging apparatus according to claim 12, further comprising an image creation apparatus which creates images including areas where radiopharmaceutical in the body of said examinee is concentrated using the output information from said signal processing apparatus.

15. The radiological imaging apparatus according to claim 14, wherein said wires are provided in said detector support substrate.

16. A radiological imaging apparatus comprising:

a detector support member which extends in the longitudinal direction of a bed for supporting an examinee and is arranged around said bed;

an X-ray source which moves around said bed and radiates X-rays; and

a radiation detection apparatus including a plurality of radiation detector units arranged in the longitudinal direction of said bed and around said bed, said plurality of detector units being attached to said detector support member in a detachable manner,

wherein said detector unit is provided with a plurality of radiation detectors for detecting radiation and some of said radiation detectors for detecting said radiation that has passed through other said radiation detectors, and at least said some radiation detectors output both said X-ray detection signals and γ-ray detection signals.

17. The radiological imaging apparatus according

to claim 16, wherein said radiation detectors are semiconductor radiation detectors.

18. The radiological imaging apparatus according to claim 17, wherein said some radiation detectors and said other radiation detectors are arranged rectilinearly.

19. The radiological imaging apparatus according to claim 16, further comprising an X-ray source transport apparatus which transports said X-ray source in said longitudinal direction.

20. The radiological imaging apparatus according to claim 19, wherein said some radiation detectors and said other radiation detectors are arranged rectilinearly.

21. The radiological imaging apparatus according to claim 16, further comprising a tomographic image creation apparatus which creates tomographic images using first information obtained from said γ-ray detection signals and second information obtained from said X-ray detection signals.

22. The radiological imaging apparatus according to claim 16, further comprising:

a first γ-ray signal processing apparatus for getting said γ-ray detection signals from said first radiation detectors which output both said X-ray detection signals and said γ-ray detection signals and an X-ray signal processing for getting said X-ray detection signals provided for each of said first

radiation detectors;

a second γ-ray signal processing apparatus for getting said γ-ray detection signals from said second radiation detectors which do not output said X-ray detection signals but output said γ-ray detection signals provided for each of said second radiation detectors;

a counting apparatus which receives output signals from said first γ-ray signal processing apparatus and said second γ-ray signal processing apparatus and outputs information such as position information of each of a pair of said radiation detectors which have detected said γ-rays within a set time and count information of said detected γ-rays; and

a tomographic image creation apparatus which creates tomographic image information using said position information, said count information and output information of said X-ray signal processing apparatus.

23. The radiological imaging apparatus according to claim 22, wherein said radiation detectors are semiconductor radiation detectors.

24. The radiological imaging apparatus according to claim 23, wherein said semiconductor radiation detectors comprise three or more semiconductor elements having at least two surfaces and arrange anode electrodes and cathode electrodes alternately between said different semiconductor elements.

25. The radiological imaging apparatus according

to claim 23, wherein said semiconductor radiation detector has a multilayered structure with an even number of semiconductor elements, forms common anode electrodes and cathode electrodes between said adjacent semiconductor elements in said semiconductor radiation detectors and forms common cathode electrodes on both the mutually facing sides of the adjacent semiconductor radiation detectors.